

Studies in African Bombyliidae. IX. On *Hyperusia* Bezzi and the tribe Corsomyzini

by

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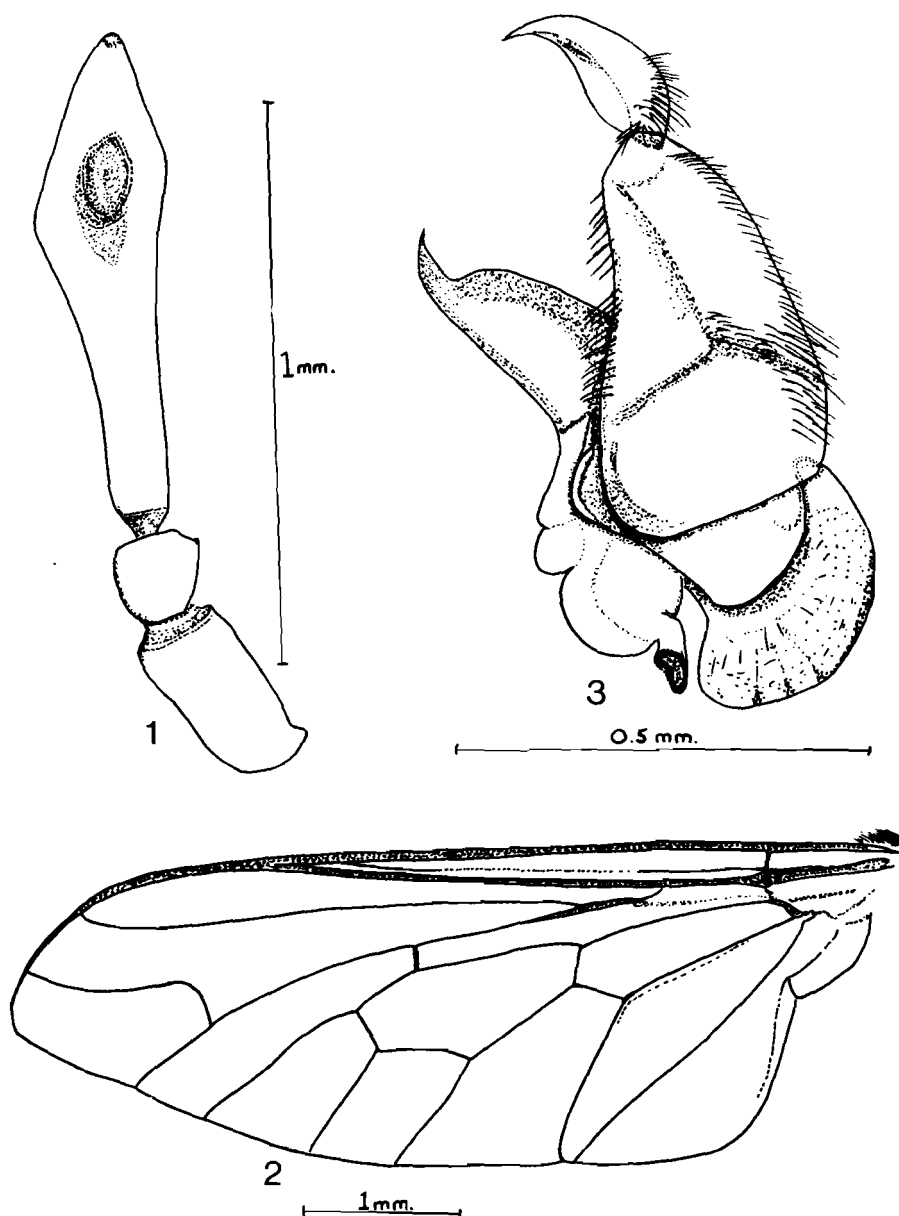
Hyperusia Bezzi dates from 1921, not 1924, with type species *minor* Bezzi, by monotypy. Two new species of the genus, *xantholeuca* and *intercedens*, are described from South West Africa and Botswana. The tribe Corsomyzini is discussed, redefined and a key to genera provided. It is shown that *Mariobezzia* Becker is a Corsomyzine and the distribution of the tribe is mapped, that of *Mariobezzia* being described as Afro-Iranian.

Some nomenclatural problems relevant to the proposed Catalogue of Ethiopian Diptera require fuller explanation than is appropriate to a catalogue. One concerns the genus *Hyperusia* Bezzi.

Hyperusia was formally proposed by Bezzi, 1924: 107, with type species designated as *luteifacies* Bezzi, 1924: 108, from Natal, the holotype deposited in the British Museum (Natural History). This designation was accepted by Hesse (1938) and Hull (1973), who also cited it as an original designation. However, *Hyperusia* is first mentioned in Bezzi 1921, where it is differentiated in a key to genera (p. 4) and associated with a species, *minor* Bezzi, fully described on p. 84. Bezzi compared *minor* with an un-named type species "robust . . . of proportionately greater size, from Natal, in the British Museum", so it must be assumed that Bezzi had *luteifacies* in mind when describing *minor* and had probably already drawn descriptions of both genus and his intended type species in 1921, but which were not published until 1924. Nomenclatorially, Bezzi's evident intentions are irrelevant; the facts are that the genus was recognisably defined in 1921 with a fully described species. *Hyperusia* must therefore date from 1921, with type species *minor* Bezzi, by monotypy. Hesse (1938) thought *luteifacies* an unfortunate type species, suggesting even that it might be a species of the *simplex* Wied. group of *Corsomyza* Wied. The designation of *minor* as type species removes any doubt over the status of *Hyperusia* and among material collected by the British Museum Southern African Expedition are two species closely allied to *luteifacies* which appear to link that species with others of the genus.

***Hyperusia xantholeuca* spec. nov., figs 1-3**

♂♀. *Body* entirely black in male, but face and genae sometimes brownish; in female most of head, except below and around occipital foramen, reddish, the ocellar tubercle contrastingly black, scutellum ferrugineous-red. *Head*: in male with ocellar tubercle separated from eye margins by about width of anterior ocellus, eyes with large facets in upper half sharply demarcated from small lower facets; in female frons about 2.5 times width of ocellar tubercle and in ratio 1:2.25 to width of head across eyes, latter with



Figs 1-3. *Hyperusia xantholeuca* spec. nov. 1. Female antenna. 2. Wing. 3. Male genitalia.

facets all equal, antennae (fig. 1) black, extreme apex of second and base of third segments obscurely brownish in male, first more or less reddish and second brownish apically in female, proportions 2:1:6 in male, 2:1:5 in female, second segment without apical dorsal process, only slightly angular; proboscis black. *Thorax*: mesonotum quadrate, at least as broad across wing bases as long, scutellum about $\frac{1}{3}$ length of mesonotum. *Abdomen* sharply triangular, width decreasing rapidly from IV to apex. *Pubescence* showing usual sexual dimorphism; hair long and comparatively dense in male, short and sparse in female; in male, bristly tuft behind ocellar tubercle and facial brush flushed yellowish, that anteriorly on mesonotum markedly dense, posteriorly finer and sparser, that and also discally on abdomen slightly yellowish, otherwise all white; in female somewhat more shining pale yellowish on head and abdomen; fine adpressed hair-like scales light yellowish to brassy yellowish in males, much denser, covering entire mesonotum and shining brassy yellow to golden in female. *Legs*: coxae, femora and last segment of all tarsi black, tibiae and remainder of tarsi dark- to yellowish brown, mid femora sometimes almost entirely brown in male and apices of all femora broadly brown in female; pubescence predominantly white in male, distinctly yellowish in female, femora with a ventral fringe of black bristly hair in male, females sometimes with a similar fringe on front femora; spicules on tibiae and tarsi black; claws strongly bent over at middle, yellowish basally, black apically, pulvilli whitish. *Wing* (fig. 2) hyaline with slight to moderate yellowish tinge basally and in costal cell; s-m at least $\frac{3}{4}$ along discal cell, empusal cell variable from closed and shortly stalked to quite widely open; veins yellowish basally, more distinctly so in female, becoming brown towards margin; basal comb with shining yellowish hair, basal hook pale yellowish, epaulet white; squama somewhat yellowish with white fringe, haltere light yellowish brown, apex of knob clear pale yellow. *Male genitalia* (fig. 3) typical of genus, telomereres relatively deep, basimeres with triangular ridges, aedeagus comparatively stout.

Length of body 6.0–8.0 mm, of wing 5.7–7.7 mm, of proboscis 2.1–3.2 mm.

MATERIAL EXAMINED. South West Africa: ♂ holotype, 3♀ paratypes, 32 miles SE Ondangua, 1.iv.1972; ♀ paratype, Otjikoko Sud Farm, 33 miles ENE Omaruru, 10–13.ii.1972. Botswana: 1♂, 3♀ paratypes, Kuke Pan, 20° 59'S, 22° 25'E, 14–15.iv.1972; 1♀ paratype, 42 miles W. Kalkfontein, 11–12.iv.1972, (at light). All collected by British Museum Southern African Expedition. Holotype in B.M. (N.H.), paratypes in B.M. (N.H.) and coll. JB.

Remarks. In the key of Hesse (1938) this species would run to near *nivea* Hesse and *transvaalensis* Hesse because of the black third antennal segment. However, it is probably nearest to *muscoides* Hesse, with which *xantholeuca* agrees in the simple second antennal segment. The females are also very similar to *luteifacies* but differ especially in the different head pattern, deeper colour of the scales and the pale haired femora. *H. xantholeuca* exhibits some variability in the wing venation, especially in the form of the empusal cell (see Bowden 1974:90); in most specimens this cell is closed at the wing margin but may vary from closed and shortly stalked to open, in some individuals varying between the two wings. For example, in two of the females from Kuke Pan the empusal cell is almost closed in the right wing but open in the left wing while in the third female from Kuke Pan the cell is closed and shortly stalked in both wings.

An additional female, from Botswana, 42 miles W. of Kalkfontein, at light, may also belong to *xantholeuca*. It is rather denuded, antennae all black, ocellar tubercle with a distinct black surround, lower frons and sides of face with more, although obscure, brownish suffusion, scutellum brownish basally; also, the pubescence is somewhat paler,

more light brassy in colour. The paratype from the same locality, collected at the same time and also at light, has the first antennal segment rather blackish above, more extensively so on the right antenna and on the same side the second segment is decidedly blackish, less obviously so on the left. Although there is some variation in *xantholeuca*, the second Kalkfontein female is somewhat outside the range included in the other nine specimens and as it is rather damaged, I prefer not to assign it definitely to *xantholeuca*.

The capture of specimens at light is noteworthy. It might be thought the Bombyliidae is one of the families least likely to occur at lights—which must indicate some crepuscular activity at least, whether voluntary or not. There are in fact many records of Bombyliidae at lights and it is intended to bring all these records together in a later paper. This record of *Hyperusia* at light is thus not exceptional but an interesting addition to an already long list.

***Hyperusia intercedens* spec. nov.**

♀. A species with all black antennae which will key to *transvaalensis* in Hesse (1938), but differs as follows: second antennal segment simple; frons and upper occiput more extensively reddish to yellowish red, pubescence on head distinctly yellowish, no dark hairs anywhere; fine adpressed pubescence on body brassy yellow; no dark hairs on femora, tibial pubescence light yellowish; wing with pale but distinct yellowish stain basally and even along some veins in basal half; haltere with more yellowish stem; frons 2.5 times width of ocellar tubercle and in ratio of 1:2.25 to width of head across eyes, antennal proportions 2:1:6.

Length of body 4.0–5.6 mm. of wing 4.0–4.2 mm. of proboscis 1.2–1.7 mm.

♂: Unknown.

MATERIAL EXAMINED. ♀ holotype and ♀ paratype, Botswana, 42 miles W. Kalkfontein, 11–12.iv.1972, paratype at light. British Museum Southern African Expedition; in B.M. (N.H.).

Remarks. This species is very close to *xantholeuca*, differing in being distinctly smaller, the head more extensively darkened, antennae all black, scutellum black, femora without dark hairs and wing with yellowish staining along basal veins. This species and *xantholeuca* seem to link *luteifacies* with *muscoides*; these species all possess a simple second antennal segment and the females show a series of increasing reddish body colour from the almost all black *muscoides* through *intercedens* to the more extensively reddish *xantholeuca* and *luteifacies*.

Hyperusia belongs to a closely allied group of genera; the others are *corsomyza*, *Callynthrophora* Schiner, *Gnumyia* Bezzi, *Megapalpus* Macquart, *Pusilla* Paramonov and *Zyxmyia* Bowden. I have previously speculated (Bowden, 1960) that *Pusilla* is related to *Corsomyza* and is not, as Paramonov thought, a Usiine. I have examined the type and paratype, both males, in the British Museum (Natural History), and they undoubtedly belong to the *Corsomyza* group, close to *Hyperusia* but distinguished by elongate proboscis and the gross development of the male genitalia, which are relaxed beneath the abdomen.

Hesse (1938) recognised the distinctness of the *Corsomyza* group but Hull (1973) was the first to formally separate them into the tribe Corsomyzini of the Bombyliinae. With the Corsomyzini Hull allied *Mariobezzia* Becker, but with separate tribal status. *Mariobezzia* was erected (Becker 1913a) for two Iranian species, *lichtwardti* Becker and *zarudnyi* Becker (Becker 1913a) as the only genus of a new subfamily Mariobezziinae.

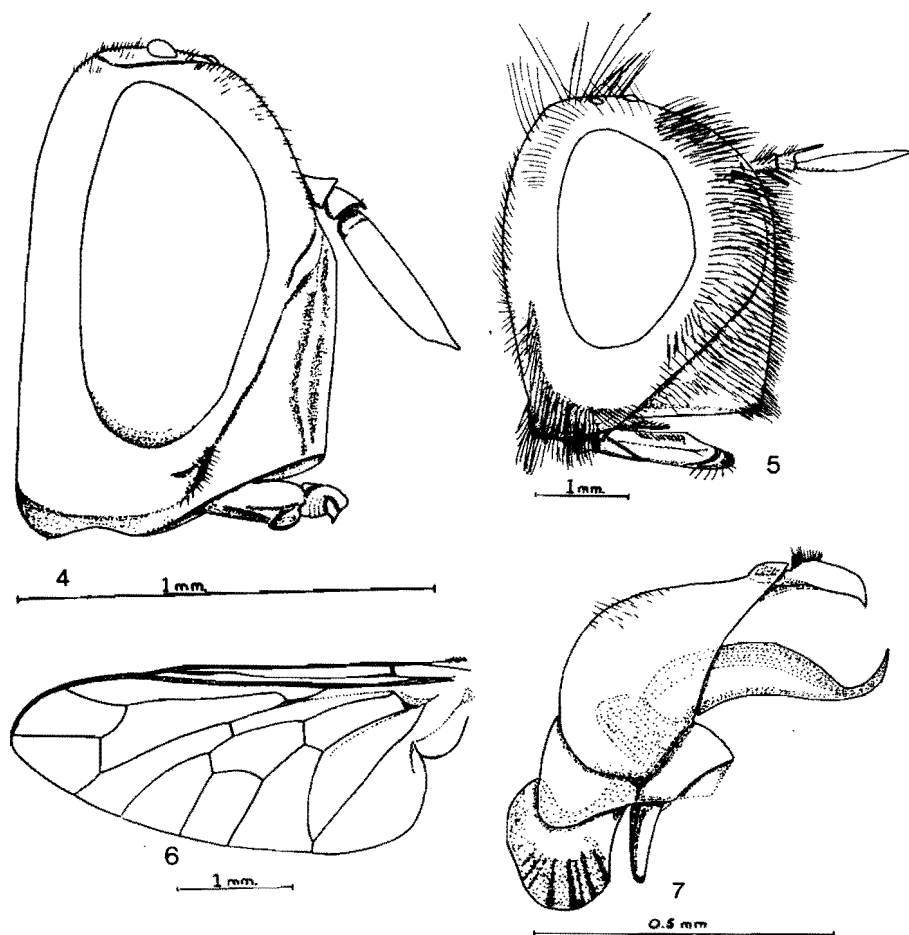


Fig. 4. *Mariobezzia lichtwardti* Becker, female head. 5. *Gnumyia fuscipennis* Hesse, female head. 6-7. *M. lichtwardti*. 6. Wing. 7. Male genitalia.

This status was accepted by all subsequent workers until Hull (1973) reduced it to tribal status. Hull gave no reasons for allying *Mariobezzia* with the Corsomyzini; Becker (1913a, 1913b), and most subsequent authors, compared *Mariobezzia* with *Conophorus* Meigen, primarily because of an apparent similarity of wing venation (fig. 6) which, however, is evidently the same as that of *Hyperusia* except for the third submarginal cell. The most distinctive character of *Mariobezzia*, according to authors, is the remarkable facial development (fig. 4; see also especially Efflatoun 1946), which distinguishes it from almost all other Bombyliid genera but, particularly in females, is almost identically to *Gnumyia* (fig. 5). The male genitalia have not been described; those of a male of *M. lichtwardti* from Wadi Rishrash, near Helouan, Egypt, are illustrated in fig. 7; they are quite clearly very

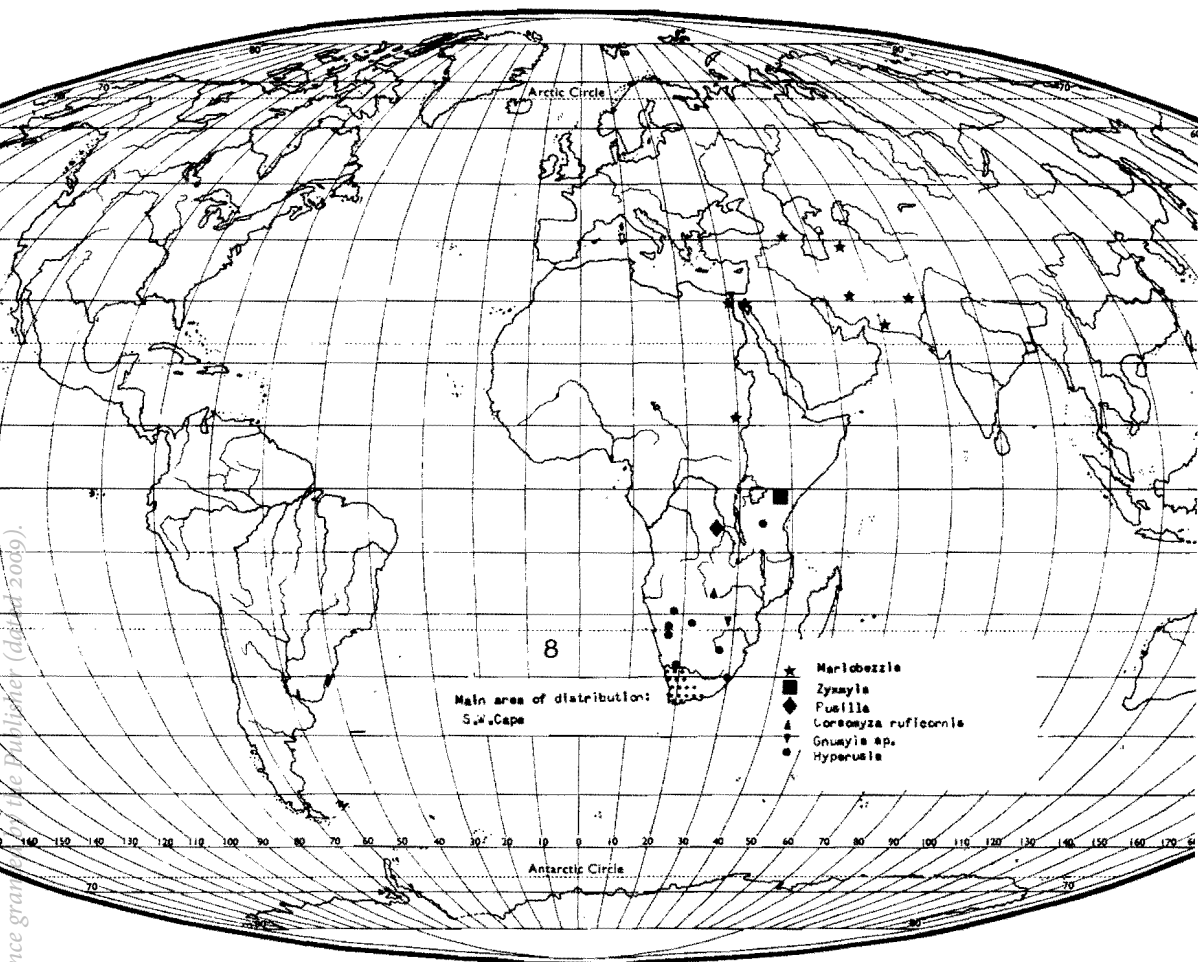
similar to those of *Hyperusia* and all the other Corsomyzini, in which generic differences in the male genitalia are so small that it is difficult to segregate genera from male genitalia. This is an unique situation, at least in the Bombyliinae, where generic distinctions in male genitalia are usually readily apparent, and emphasises the compactness of the Corsomyzini. Clearly, *Mariobezzia* belongs in the Corsomyzini; it is the North African sister genus of *Gnumyia*.

Bezzi (1924: 20) designated *zarudnyi* as type species of *Mariobezzia*. According to Efflatoun (1946), males of *lichtwardti* have been taken in *copula* with females corresponding to descriptions of *lichtwardti*, *zarudnyi* and *pellucida* Paramonov. Efflatoun also states that *griseohirta* Nurse is the same as *lichtwardti*, recording a male agreeing with the description of *griseohirta* in *copula* with a female agreeing with the description of *zarudnyi*. I have not been able to find these pairs among Efflatoun's material in his collection at the Société Entomologique d'Egypte, but the series (many specimens of which have been badly damaged) is certainly very variable. Since all the specimens were collected in restricted localities over restricted periods, it seems reasonable to accept that there is a single species of which the female is very variable, and I accept Efflatoun's synonymy of *lichtwardti*, *zarudnyi*, *pellucida* and *griseohirta*. Since *lichtwardti* has page priority, the type species designation becomes *lichtwardti* Becker, by designation of Bezzi (1924: 20) as *zarudnyi* Becker, = *lichtwardti*. It seems, therefore, that a single variable species is distributed from Egypt to Baluchistan; *catherinae* Efflatoun, from southern Sinai, is clearly distinct and *ebneri* Becker, from the central Sudan, also seems a good species. Whether *armeniaca* Zaitsev, known from a single female, is separate is uncertain in view of the great range of variability apparently encompassed by females of *lichtwardti*.

The Corsomyzini may be defined as follows: Bombyliinae with unusually or remarkably broad head, males broadly dichoptic, females with frons very broad, at vertex at least one-third width of head across eyes; face usually very short or almost obliterated, sometimes with strongly raised buccal margins but sometimes (*Gnumyia*, *Mariobezzia*) markedly elongate and more or less inflated; second antennal segment usually with apical dorsal process, at least dorsal apical margin slightly angular, third segment usually more or less clavate but narrow and linear in *Gnumyia* and *Mariobezzia*; pleura with ptero- and metapleura bare, epimeron largely bare but either a tuft of hair immediately posterior to metathoracic spiracle or, if absent, then with a small pollinose area behind spiracle; apical tarsal segments often with a row of strong, apical setae, claws large, often strongly reflexed, pulvilli well developed; wing venation with subcosta often more or less evanescent in middle, discal cell short and broad, s-m well down the discal cell, sectoral fork very wide, normally with 2 submarginal cells, 3 in *Gnumyia*, *Mariobezzia* and one species each of *Callynthrophora* and *Corsomyza*, posterior cells all widely open, empusal cell narrowly open to closed and shortly stalked, but sometimes (*Pusilla*) widely open, anal lobe normally broad but narrowed in *Pusilla*, alula present but relatively small; body with sometimes dense pubescence, particularly in males, hairy pubescence less dense but scales often more dense in females, both sexes sometimes (*mariobezzia*, *Zyxmyia*) relatively bare; often strongly dimorphic. Male genitalia remarkably uniform; basimeres simple, with a basal extension, telomeres laterally compressed and apically pointed; aedeagus simple, relatively stout and apically curved, without process, rami and apodeme simple.

The distribution of the tribe, shown in fig. 8, is from the south-west Cape along the savanna corridor to East Africa, into the Sudan and east to Baluchistan. The centre of distribution seems to be Cape Province and Namaqualand; *Corsomyza* is exclusive to

OUTLINE MAP OF THE WORLD on Mollweide's Homolographic Projection



Areas correct. Distortion increasing towards border of map
Approximate scale 1 : 100,000,000 (1,600 miles = 1 inch) along Equator

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Fig. 8. Distribution of the tribe Corsomyzini.

this area except for *C. ruficornis* Bezzi described from Victoria Falls (this may in fact be a *Hyperusia*); *Megapalpus* and *Callynthrophora* have a similar distribution, as does *Gnumyia* except for a record by Malloch (1932) from the Bulawayo district. *Hyperusia* is distributed in a belt from South West Africa to Transvaal and Natal, with an undescribed species referable to the genus found by Dr D. J. Greathead in central Tanzania. *Pusilla* is known only from Katanga and *Zyxmyia* from two localities in the arid area astride the border of Kenya and Tanzania near Kilimanjaro. *Mariobezzia* is found from the central Sudan through Egypt to the Middle East as far as Quetta. This distribution, from North-East Africa to Iran and Baluchistan, is not uncommon among Bombyliidae and, since it will be referred to in other papers, it is appropriate now to introduce the description *Afro-Iranian* for this distribution. It is of considerable zoogeographic significance. The very similar distribution of *Efflatounia* Bezzi was related to drift of the Iranian plate by Bowden (1973) and this suggestion, with related zoogeographical problems, will be discussed more fully in a later contribution.

The genera of the Corsomyzini can be distinguished by the following key.

KEY TO GENERA OF CORSOMYZINI

- 1 Head with frons or face inflated or prominently developed; usually with 3 submarginal cells 2
- Head with neither frons nor face inflated; with 2, rarely 3, submarginal cells 4
- 2 Frons not inflated; face prominently developed and antennae inserted much nearer ocellar tubercle than buccal margin, or at least a long way removed from buccal margin, with third segment narrow and linear; upper epimeron without hair tuft behind metathoracic spiracle 3
- Frons prominently inflated, bulging above antennae which are inserted just above buccal margin, third antennal segment distinctly clavate; upper epimeron with tuft of hair immediately behind spiracle **Callynthrophora** Schiner
- 3 Pubescence dense in males and obvious in females **Gnumyia** Bezzi
- Pubescence sparse in both sexes, females almost bare **Mariobezzia** Becker
- 4 Buccal margin raised in prominent ridges; without plumula, upper epimeron without hair tuft behind spiracle 5
- Buccal margin not raised in prominent ridges, although it may be well defined by genal sulci; with plumula, upper epimeron with hair tuft behind spiracle 6
- 5 Antennae inserted about half way between ocellar tubercle and buccal margin; one or more pre-alar macrochaetae **Megapalpus** Macquart
- Antennae inserted immediately above buccal rim; no pre-alar macrochaetae **Zyxmyia** Bowden
- 6 Antennae inserted immediately above buccal rim; no prominent facial brush in either sex 7
- Antennae distant from buccal margin by about or more than length of first antennal segment; facial brush dense in males and obvious in females **Corsomyza** Wiedemann
- 7 Body without appressed, scale like pubescence; empusal cell widely open, anal lobe narrow and smoothly rounded, alula very narrow; proboscis elongate, about equal to length of head and thorax combined (male only known; eyes very widely separated, by 3 times width of ocellar tubercle, eye margins sub-parallel; genitalia very large and reflexed beneath abdomen) **Pusilla** Paramonov
- Body with dense, appressed scale like pubescence; empusal cell closed or only narrowly open, anal lobe broad with more triangular outline, alula well developed; proboscis much shorter, not noticeably elongate (male with eyes separated by little more than width of ocellar tubercle, eye margins thus strongly convergent; genitalia inconspicuous, withdrawn into abdomen) **Hyperusia** Bezzi

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Manuscript received 22 April 1974.